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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/016,911 | 12/13/2001 | Kazuyoshi Tominaga | S004-4494 | 9599 |

7590 01/15/2004

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EXAMINER

DO, AN H

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| ART UNIT | PAPER NUMBER |
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2853

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/016,911

Applicant(s)

TOMINAGA, KAZUYOSHI

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9,15,17 and 19-25 is/are rejected.
- 7) ☒ Claim(s) 16 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 November 2003 has been entered.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in JAPAN on 01 November 2001. It is noted, however, that applicant has not filed a certified copy of the JAPAN 2001-004062 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 15, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Shigemura (US 6,361,151).

Shigemura discloses in Figures 2 and 3 an ink jet head comprising the following claimed features:

- a substrate (11);
- a plurality of partition walls (3a-3e) disposed on a main surface of the substrate (11) and spaced apart at a preselected interval to form a plurality of channels (1ab, 1cd, 1ef) each for receiving ink;
- an ink chamber plate (8) connected to the substrate (11) to define, with the partition walls (3a-3e) an ink chamber (9) for supplying ink to the channels (1ab, 1cd, 1ef);
- a passage forming member (12) connected to the ink chamber plate (8) or the substrate (11) and having an ink supply passage (the hollow section shown in Figure 3) disposed in communication with the ink chamber (9) for supplying ink contained in an ink storage device to the ink chamber and at least one ink discharge passage (12) for discharging ink from the ink chamber (7);
- the ink discharge passage (the opening of passage member 12) extends along a longitudinal direction of the ink chamber (Figure 2);
- each of the partition walls (3a-3e) having a pair of deformable side walls and a plurality of electrodes (Figure 4, elements 4ab, 4cd...) each connected to respective ones of the side walls of the partition walls and driven by a voltage signal to deform the side walls to vary the volume in the channels to thereby eject ink from the channels (1ab, 1cd, 1ef...); and

-In Figure 2, a nozzle plate (7) connected to the substrate (11) and having a plurality of nozzle openings (6ab, 6cd, 6ef...) each disposed in communication with respective ones of the channels (1ab, 1cd, 1ef...) so that when the electrodes are driven by a voltage signal ink is ejected from the channels (1ab, 1cd, 1ef...) through the nozzle openings (6ab, 6cd, 6ef...).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 4, 6, 9, 21-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigemura (US 6,361,151) in view of Namekawa et al (US 6,109,740).

Shigemura discloses the claimed invention except for reciting a check valve permitting only a flow from the ink chamber to outside, the communicating passage is sealed by securing a cap member to the passage forming member through an O-ring, absorbing means connected to the communicating passage.

Namekawa et al teaches a check valve (column 6, lines 39-42) permitting only a flow from the ink chamber to outside, the communicating passage is sealed by securing a cap member (Figure 12, element 124) to the passage forming member through an O-ring (column 13, lines 29-33), absorbing means (61A, 61B, 61C) connected to the communicating passage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shigemura's invention by Namekawa et al's check valve, sealing member and absorbing means for the purpose of controlling the flow of ink in the passage.

7. Claims 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigemura (US 6,361,151) in view of Hirasawa et al (US 6,196,655).

Shigemura discloses the claimed invention except for reciting a filter is provided between the ink supply passage and the ink chamber.

Hirasawa et al teaches in Figure 4 a filter (30) is provided between the ink supply passage (17) and the ink chamber (12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shigemura's invention by Hirasawa et al's filter for the purpose of removing foreign material such as bubbles or dust present in the supply path, as taught by Hirasawa et al in column 1, lines 58-64.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigemura (US 6,361,151) in view of Hiraishi (JP 405229116A).

Shigemura discloses the claimed invention except for reciting the at least one ink discharge passage comprises two discharge passages.

Hiraishi teaches in Figure 1 the at least one ink discharge passage comprises two discharge passages (6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shigemura's invention by Hiraishi's two discharge passages for the purpose of discharging the ink on both sides of the ink passages (30).

Response to Arguments

9. Applicant's arguments with respect to claims 1-6, 9 and 15-25 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claims 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 16 the inclusion of the limitations of the passage forming member has a main surface through which the ink supply passage and the ink discharge passage extend and a side surface having a plurality of openings each disposed in communication with a respective one of the ink supply passage and the ink discharge passage; and the side surface of the passage forming member is connected to the substrate so that the openings are disposed in communication with the ink chamber. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 18 the inclusion of the limitations of the ink discharge passages are disposed at opposite end portions of the passage forming member corresponding to opposite end portions of the ink chamber. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 703-308-0525. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 703-308-4896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



An H. Do
January 12, 2004